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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/023,018	12/17/2001	Wah Yiu Kwong	042390P11691	7243

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EXAMINER
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JAMAL, ALEXANDER

ART UNIT	PAPER NUMBER
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2643

DATE MAILED: 05/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/023,018

Applicant(s)

KWONG ET AL.

Examiner

Alexander Jamal

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Objections*

1. **Claim 24** objected to because of the following informalities:

Line 4, 'coding' should be changed to 'coding element'

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 1,4,5,8-12,15,16,19,20** rejected under 35 U.S.C. 102(e) as being anticipated by Ying (6697020).

As per **claim 1**, Ying discloses a portable computing device that comprises a housing (Fig. 1), a display 12, and an antenna (Fig. 6) mounted on the display (ABSTRACT).

As per **claim 12**, claim rejected as a method performed by the claim 1 rejection.

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As per **claim 4,15**, the antenna is located under the display.

As per **claim 5,16**, the device comprises a radio 19 (Fig. 3).

As per **claims 8,9**, Ying discloses a center fed dipole and an end fed dipole antenna (Figs 6,9).

As per **claims 10,11,19,20**, Ying discloses that the radio device may be a PDA or PC tablet (Col 1 lines 15-30).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 2,3,13,14** rejected under 35 U.S.C. 103(a) as being unpatentable over Ying (6697020) as applied to claims 1,12 above, and further in view of Kuroe et al. (6028748).

As per **claims 2,3,13,14**, Ying discloses claims 1 and 12, and that the antennas are microstrip antennas, but does not specify how they are coupled to the display.

Kuroe discloses that a microstrip line is produced by sputter etching on a substrate that may be made of glass (Col 10 line 44 to Col 11 line12). It would have been obvious

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to one of ordinary skill in the art at the time of this application that the well-known procedure of sputter etching could be used to put a stripline on a substrate.

6. **Claims 6,7,17,18**, rejected under 35 U.S.C. 103(a) as being unpatentable over Ying (6697020) as applied to claims 1,12 above, and further in view of Carson et al. (5705855).

As per **claim 6,17**, Ying discloses applicant's claims 1,12, but does not specify that the RF circuitry is mounted to the display.

Carson discloses a communications device with a display (ABSTRACT) (Col 3 lines 40-60). Carson further discloses any conventional IC may be mounted to the under side of the LCD display on the glass substrate (Col 7 lines 14-25) with a chip-on-glass procedure. Carson teaches that this procedure can help in the miniaturization of communication devices (Col 1 line 65 to Col 2 line 10). It would have been obvious to one of ordinary skill in the art at the time of this application that any of the RF radio IC chips of Ying (Fig. 3, transceiver 19) could be mounted on the glass substrate of the LCD for the advantage of providing greater flexibility in design and miniaturization.

As per **claim 7,18**, the chip is mounted using glass on chip technology (Carson: Col 7 lines 14-25).

7. **Claim 21,26,27** rejected under 35 U.S.C. 103(a) as being unpatentable over Ying (6697020) and Carson et al. (5705855).

As per **claim 21**, claim rejected for the same reason as claim 6. Carson teaches mounting IC's onto the underside of an LCD display, and Ying discloses a GPS antenna formed on the underside of an lcd display coupled to a GPS receiver. However, Ying does not disclose the cellular antenna formed on the lcd display, along with an rf transceiver.

Ying discloses that the invention relates to hand-held rf communications devices with at least 1 antenna (Col 1 lines 10-15). Ying further teaches that the antenna mounting allows for greater miniaturization (Col 1 line 65 to Col 2 line 25). It would have been obvious to one of ordinary skill in the art at the time of this application that the cellular system antenna (Fig. 3) could be mounted to the LCD, along with the transceiver circuitry mounting taught by Carson for the purpose of allowing for greater miniaturization for cell phones.

As per **claims 26,27**, Ying discloses that the radio device may be a PDA or PC tablet (Col 1 lines 15-30).

8. **Claims 22-25** rejected under 35 U.S.C. 103(a) as being unpatentable over Ying (6697020) and Carson (5705855) as applied to claim 21, and further in view of Zuckerman (5802463).

As per **claim 22**, Ying in view of Carson discloses claim 21. However they do not specify the details of the cellular or GPS interface circuitry.

Zuckerman discloses an RF transceiver with a network controller (comprised of parts of units 15 and 16 in Fig. 1) used to interface the transceiver with the network. It would have been obvious to one of ordinary skill in the art at the time of this application that both the GPS and cellphone systems would require network controllers for the purpose of interfacing with their respective networks.

As per **claim 23**, Zuckerman discloses a MAC dsp coupled to a baseband dsp (ABSTRACT).

As per **claim 24**, Zuckerman discloses a baseband state machine, a coding element and a modulation element in Fig. 3.

As per **claim 25**, a digital cell phone inherently requires an A/D and D/A in the signal paths for the purpose of providing the interface between the analog medium (free space) and the digital processing stages (Fig. 3).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Jamal whose telephone number is 571-272-7498. The examiner can normally be reached on M-F 9AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis A Kuntz can be reached on 571-272-7499. The fax phone numbers for the

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organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9315 for After Final communications.

AJ  
May 17, 2005



CURTIS KUNTZ  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600